INTRODUCTION

The Eocene Epoch was characterized by overall warm temperatures and superimposed multiple hyperthermal events, such as the well-known Paleocene-Eocene Thermal Maximum (PETM) and EOTM (Zachos et al., 2005; Crumeyrolle et al., 2003; Agnini et al., 2009). The present study aims to characterize the environmental effects of the Early Lutetian C21r-H6 carbon-cycle perturbation on calcareous nanofossils and shallow ocean dynamics (Gorrondatxe, Western Pyrenees).

RESULTS

Up to 98 autochthonous species and 15 reworked genera were identified. The total amount of autochthonous species decreased significantly in the hyperthermal deposits, whereas the proportion of reworked genera increases.

Significant changes occurred to the species Chiasmolithus solitus, one of the species that most suffer dissolution (Schneider et al., 2011).

DISCUSSION

The beginning of the hyperthermal event has previously been discussed by Payros et al. (2012). The nanofossil data suggests that, in effect, the event may have started a few meters below—Consistently in meter 115 of the column. On the other hand, we suggest that the interval itself could be divided into two parts, starting from the line that we have plotted in meter 126, after which a recuperation may have started

METHODS

Sixty samples were collected, 15 samples below the hyperthermal event, 36 within the key interval and 9 above. Samples were prepared using the decantation method (Flores and Sierro, 1997). The variations of several nanofossil genera were analyzed by counting 500 fossils per sample. In addition, calcification of the shells was measured by image analysis method ( Fuertes et al., 2014), estimating the shell width from the grey level of the polarized light on the microscope. This study was carried out in the laboratory of Nannoplankton Research funded by the Spanish Government.

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